

Leukemia Patients in Early Survivorship: Comparison of Reported Financial Distress During,  
After, and Three- and Six-Months Post-Treatment

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### Abstract

Despite the high level of distress that accompanies the diagnosis of acute leukemia, little is published about how and when to address patient-reported financial distress. This article reviews the level and source of self-reported distress in early survivorship as associated with pre- and post-diagnosis financial income and insurability.

Individuals with a new diagnosis of acute leukemia were recruited from a Midwestern comprehensive cancer center. Self-report questionnaires were distributed to individuals during active cancer treatment, at its end, and during 3-, and 6- month post-treatment follow-up visits. Participants were asked to complete a demographic questionnaire, the National Comprehensive Cancer Network (NCCN) Distress Thermometer and related 38-item problem list and two author-derived free response items to elicit priority bothersome symptoms and causes of distress.

Results indicated that 62% of participants (N=100) rated their distress as 4 or higher indicating moderate to severe psychological distress (Holland & Bultz, 2007). In the free response section top distressors included: disease symptoms, work/financial, and family/children. The results indicate that leukemia survivors experience a multitude of obstacles and challenges that extend beyond their cancer treatment. Acute leukemia patients and their families may benefit from Survivorship Care.

## **Introduction**

Acute leukemia is a condition associated with considerable morbidity and mortality, both from the disease and from its aggressive treatment (Rodin, et al., 2011). However, the distress response to this diagnosis and treatment has not been well documented nor are the standards of care well established. Despite significant increases in treatment effectiveness, the diagnosis and treatment of cancer remains one of the most emotionally distressing events in medical care (Hoffman & D'Arrigo, 2004). Successful cancer treatment is no longer only determined by a cancer free state but also by its impact on psychological well-being and quality of life (Rajandram et al., 2011). Evidence indicates that distress often goes unrecognized by oncology professionals (Jacobsen et al., 2005).

Distress may be associated with various domains including psychosocial, spiritual, practical, informational, and physical. Although the medical model has traditionally focused on the physical illness spectrum, evidence supports that assessment of distress should be an integral part of routine patient visits. Evidence suggests that increased distress is associated with a number of poor outcomes that include poorer adherence to treatment recommendations, decreased satisfaction with care, and decreased quality of life (Jacobsen, 2007). Relationships exist between heightened distress (e.g. greater depressive symptomatology) and poorer survival in people with cancer (Steel, Geller, Gamblin, Olek, & Carr, 2007). Research suggests that ignoring patient concerns could negatively impact the health care system (Waller, Williams, Groff, Bultz, & Carlson, 2011). Untreated distress can lead to increased length of hospital stay, increase in hospitalization frequency, increase in physician office visits, increase in emergency room visits, and an increase in the number of prescriptions received (Carlson & Bultz, 2004).

Once identified, cancer-related distress can be treated and potentially result in reduced health-care costs and increased quality of life (Hoffman & D'Arrigo, 2004).

### **Review of Literature**

Distress is a psychological state that may be exacerbated by physical symptoms, interpersonal challenges, psychological symptoms, social issues, and existential concerns. Prolonged exposure to stress can have a negative effect on quality of life, and stimulate a host of physical manifestations. Studies have demonstrated that stress may play a role in disease progression (Lillberg et al., 2003). Long-term adult brain tumor survivors (N=75) were studied using the Distress Thermometer (Keir, Swartz, & Friedman, 2007) to determine their long-term survivorship needs. The sample consisted of 42 patients 18 months or more since diagnosis, and 33 patients less than 18 months since diagnosis (Keir et al., 2007). Despite the long-term survival status, long-term survivors (e.g. those patients 18 months or more since diagnosis) continued to experience elevated levels of distress related to familial, emotional, and practical concerns (Keir et al., 2007).

### **Acute Leukemia Survivors**

Patients with acute leukemia, who were newly diagnosed, recently relapsed, or treatment failures (N= 205) were studied to investigate the prevalence and correlates of post-traumatic stress symptoms in this population (Rodin et al, 2011). Participants completed the Stanford Acute Stress Reaction Questionnaire, Memorial Symptom Assessment Scale, CARES Medical Interaction Subscale, and other psychosocial measures (Rodin et al., 2011). Of the 205 participants 86% were recently diagnosed, and 94% were in active treatment (Rodin et al., 2011). The Stanford Acute Stress Reaction Questionnaire revealed 14% of patients met criteria for acute stress and 18% for subsyndromal acute stress disorders (Rodin et al, 2011). Post-traumatic stress

symptoms were significantly associated with an increased number of physical symptoms ( $p < 0.05$ ), increased physical symptom distress ( $p < 0.05$ ), attachment anxiety ( $p < 0.05$ ), perceived difficulty in communication with health-care providers ( $p < 0.05$ ), and poorer spiritual well-being ( $p < 0.05$ ) (Rodin et al, 2011).

A recent study examined effective engagement and support of individuals coping with a range of psychosocial issues associated with hematology diagnoses and treatment (McGrath, Hartigan, Holewa, & Skarparis, 2011). In-depth, qualitative interviews were conducted with a sample of patients ( $N=50$ ) who were at least 1 year post-treatment for hematological malignancy (McGrath et al., 2011). The primary issue documented by the study was the challenge of returning to work after a cancer diagnosis (McGrath et al., 2011). The data illustrated the range of late effects that can impact return to work such as graft-versus-host disease, pain, sleep problems, mental stress and physical exhaustion (McGrath et al., 2011). The loss of opportunity to work was associated with serious ongoing psychosocial consequences (McGrath et al., 2011). It was noted that loss of work can negatively impact sense of confidence and competence (McGrath et al., 2011).

### **Financial distress**

A study that compared the association between cancer-related financial stress and strain, and psychological well-being ( $N=634$ ) identified that 49% of respondents experienced increased cancer-related financial stress (e.g. the cancer diagnosis made it more difficult for their household to make ends meet) (Sharp, Carsin, & Timmons, 2012). Depression was reported in 48% of these respondents as compared to 23% of respondents who did not report a concomitant change in cancer-related financial stress (Sharp et al, 2012). These findings indicated that a 3.5-

fold increase in the risk of depression existed for those persons who had an associated increase in cancer-related financial strain (Sharp et al, 2012).

Patients with cancers of the breast, colon, lung, and prostate (N=1,767) were asked to complete a questionnaire dealing with treatment-related medical expenses (Markman & Luce, 2010). Approximately two thirds of survey respondents stated they had “early-stage cancer”; 40% were older than 60 years, 58% were female, and 25% belonged to a health maintenance organization (Markman & Luce, 2010). Since diagnosis, 20% of patients reported having spent out of pocket more than \$10,000 on treatment and medical care (Markman & Luce, 2010). Overall, 19% of patients and 39% of individuals with a yearly income of less than \$40,000 reported the financial costs of treating their cancer had caused a “large amount of distress” (Markman & Luce, 2010).

### **Theoretical Framework**

#### **Kornblith Vulnerability Model**

The Kornblith vulnerability model of psychosocial adaptation of cancer survivors suggests that psychological, vocational, sexual, and social adaptation to cancer and its treatment is influenced by a host of mediating variables, medical management of late effects, and psychosocial interventions (Kornblith, 1998). It is likely that mediating variables such as the patient’s communication with the medical team can have a powerful effect on the patient’s need for psychosocial rehabilitation (Fallowfield & Jenkins, 1999). For example, the patient who is upset by the way the diagnosis was conveyed can experience debilitating anxiety and depressive symptoms that require psychologic intervention (McQuellon & Danhauer, 2007).

The financial impact of a cancer diagnosis and its sequelae for the patient and family can be illustrated using the Kornblith model for vulnerability. Psychosocial adaptation to a new

diagnosis of a life-threatening cancer (e.g. acute leukemia) and its impact on the level of distress as related to the patient/family's perceived financial status may be potentially mediated by interventions in the early survivorship period. Financial counseling with focused interventions related to insurability, work issues, disability benefits, life insurance, financial planning, and even death benefits may ease the distress experienced by the patient and family. In addition, valuable information may be learned which can improve the patient/family's financial status overall.

### **Distress Study**

This Institutional Review Board-approved research study focused on leukemia and breast cancer survivors and their levels and source of self-reported distress during active cancer treatment, at its end, and during 3-, and 6-month post-treatment follow-up visits. Leukemia and breast cancer survivors were sampled as representatives of varying disease severity levels to determine if there were disease-specific differences in early survivorship care. Patient assessment measures included a demographic questionnaire, the NCCN Distress Thermometer, and author-derived items to enable survivors to report the three most bothersome symptoms and sources of distress. The research team, comprised of the principal investigator and two research assistants utilized the Charlson Comorbidity index (deGroot, Beckerman, Lankhortst & Bouter, 2003; Hall, Ramachandran, Narayan, Jani & Viiavakumar, 2004) and electronic chart review to document comorbid health conditions and interventions/referrals by the oncology provider. Study recruitment began in September 2011 and ended in March 2012.

### **Purpose and Aims**

For the first phase of this study we used a multi-group, cross-sectional design to study leukemia and breast cancer survivors. There were four scientific aims: (1) To study survivors'

(N=200) reports of the level and source of self-reported distress during active cancer treatment, at its end, and during 3-, and 6- month post-treatment follow-up visits; (2) To study disease site differences, contrasting leukemia (N=100) and breast (N=100) groups, in the level and source of self-reported distress during active cancer treatment, at its end, and during the 3- and 6- month post-treatment follow-up visits; (3) To study the trajectory of survivors' level and source of self-reported distress from the time of active cancer treatment through the 6-month post-treatment follow-up; and (4) To study gender differences, contrasting male (anticipated n=55 of 100) and female (anticipated n=45 of 100) leukemia survivors, in the level and source of self-reported distress during active cancer treatment, at its end, and during 3- and 6- month post-treatment follow-up. This paper will present the results on leukemia survivors and their reported distress in regard to financial issues during treatment, at its end, and 3- and 6- months post-treatment.

## **Methods**

### **Leukemia Study Sample**

The study sample was comprised of recently diagnosed leukemia participants at four distinct time points in their early survivorship: currently receiving initial induction therapies (time period 1), upon completion of initial or initial relapsed induction active therapy (time period 2), 3 months following completion of active therapy (time period 3), and 6 months following completion of active therapies (time period 4). All participants were at least 18 years of age or older. The sample (n=100) for this phase of the study included recently diagnosed leukemia participants with acute myeloid, lymphocytic, or promyelocytic leukemia diagnoses (AML, ALL, and APL respectively) with multiple molecular genotypes. Recently diagnosed leukemia patients were sought from their respective clinics and inpatient units at a Midwestern, National Comprehensive Institute (NCI)-designated comprehensive cancer center.



**Recruitment**

The research team reviewed the daily clinic lists and census sheets with their respective oncology health care teams to identify eligible candidates for the study with attention to the time points required for the study. Inpatients were invited to participate in the study during their hospitalization depending upon the time period, their overall physical condition, and ability to complete the brief questionnaires. Outpatients were invited to participate in the study as they arrived or waited for scheduled tests or clinic appointments. Following explanation of the study, participants provided written informed consent and Health Insurance Portability and Accountability Act (HIPAA) consent. To protect patient confidentiality, subject codes were used to identify candidates. The Clinical Research Data Manager in the Center for Clinical and Translational Science (CCTS) Biomedical Informatics at the host institution prepared Teleform scan-able data sheets.

**Procedure**

Upon completion of informed consent, the study forms were explained to the participant and self-completed in the waiting room prior to their appointment with the oncology provider (e.g. physician or nurse practitioner). The average time for completion was 7-15 minutes. Assistance was offered to patients who were unable to complete the survey on their own. Forms were collected upon completion and faxed to CCTS for tabulation. In the event the participant scored their distress as four or greater (a score designated as moderate to high distress by the instrument's scoring system), their oncology health care provider(s) was notified face-to-face by the research member prior to the patient's visit.

**Measurement****Self-Reported Distress and Current Problems**

The NCCN Distress Thermometer (DT) was used as a brief, self-report instrument that provided screening data about distress surrounding the participant's leukemia diagnosis and its impact on their psychological status (Holland & Bultz, 2007). Using the familiar image of a thermometer, participants reported their level of distress and noted the sources of their distress using a list of common treatment-related difficulties. There were three sources of data: (1) The Distress Thermometer (DT) which was a visual analog scale with a 0-10 rating. Participants were asked to rate their distress during the previous week, on a 0-10 vertical scale. A 0 score indicated 'no distress' and 10 indicated 'extreme distress'. A score of 4 or more was representative of moderate to severe psychological distress (Holland & Bultz, 2007). This rating was completed in less than 30 seconds. (2) The second portion was a 38-item problem listing, for which patients were instructed to check "yes" or "no" to problems experienced during the previous week. The problem listing represented five subscales: practical, family, emotional, spiritual/religious and physical problems. The problem list was completed in less than 10 minutes. Items were totaled with scores that ranged from 0 to 38 (Hollnad & Butz, 2007). (3) Lastly, two author-derived free response items were included to elicit disease-related issues: "List your top three causes of distress" and "List your top three most bothersome symptoms".

### **Comorbid Health Conditions**

The Charlson index was used to obtain information about the participant's comorbid conditions; the score was used as a control in the analyses. This information was obtained from the electronic medical record. The Charlson Index has been an extensively studied measure to document physical illness or condition comorbidities. Nineteen diseases have been selected and weighted on the basis of the strength of their association with mortality. Each condition was weighted from 1-6 based on the severity of the condition and its relation to mortality; total scores

range from 0-38 (DeGroot, Beckerman, Lankhortst, & Bouter, 2003). In comparison with other instruments measuring comorbidity including Liu Index, Burden of Disease, Cumulative Illness Rating Scale, Cornoni-Huntley index, Disease Count, Duke Severity of Illness, Hallstrom index, Hurwitz index, Index of Coexistent Disease, Incalzi index, Kaplan index, Liu index, and the Shwarz index, the Charlson index yielded correlation coefficients exceeding 0.40, indicating support of concurrent validity and construct validity (DeGroot et al., 2003). Predictive validity was confirmed by the identification of multiple significant relationships of the Charlson index with various criterion outcomes such as mortality, disability, readmissions, and length of stay (DeGroot et al., 2003). Test-retest reliability was reported as 'good' by the author; inter-rater reliability was stated as 'moderate to good' by the author with one outlier (ICC-0.16) (DeGroot et al., 2003).

### **Electronic Chart Review**

The electronic chart review was completed to obtain the participant's diagnosis, stage of disease, past/current cancer treatments, medications pre- and post-cancer diagnosis, and comorbid conditions. Additionally, referrals and interventions/orders from the office visit were documented.

## **Statistical Considerations**

### **Sample Size**

A sample size estimate was focused on the primary aims (1-3): 1) differences between disease groups, 2) differences across time, and 3) an interaction between group and time. Secondly we tested for gender differences within the leukemia group. The sample size was estimated using the results of a simulation study. In this simulation study we simulated data that might be obtained from the proposed study and performed statistical analyses of those data to

determine the power of detecting various differences in mean DT results. The simulation study varied the number and participants per subgroup (based on cancer type and time) and varied the “true” mean difference between DT results across time (e.g. post-treatment vs. 3-month follow-up). We used a baseline (post active treatment time point) mean DT result of 2, added the “true” mean difference to the mean DT result for the previous visit, and randomly generated observations from the two visits. Using these simulated data, we performed a two-sample t-test with 5% significance level for each combination of group size and DT difference to determine whether the test was able to detect the difference in the mean DT results for the two visits. This pooled t-test was equivalent to the primary aim analyses discussed above. For each combination of group size and difference, we generated 1000 replicates, simulated the data and performed the t-test and calculated the percentage of those replicates where the t-test correctly determined that the two mean DT results were different. For each group size, we then determined the smallest difference that was detectable with 90% power.

### **Statistical Analyses**

A multi-group, cross-sectional design was used to describe self-reported distress during cancer treatment, at its end, and during 3- and 6- month post-treatment follow-up visits in leukemia participants. Data consisted of the demographic variables, DT analog scale (values 0-10), the 38-item problem list with yes/no response options, and the top 3 causes of distress and bothersome symptoms. Categorical data collected from the electronic chart review supplemented the participant’s demographic profile. Data that was collected with these instruments at the designated 4 time points was analyzed.

### **Descriptive Analyses**

Demographic data (categorical and continuous data) were summarized using descriptive statistics such as frequencies and percentages. With consideration to the specific parameter, central tendencies were reported; means and standard deviations were calculated as appropriate.

### **Primary Analyses**

To test aims/hypotheses 1-3, a 2 (Group: Breast, Leukemia) x 4 (Time: during treatment, post-treatment, 3-months, 6-months) fixed effects analysis of variance (ANOVA) model was used although this paper is limited to data about the leukemia sample. Descriptive variables (e.g. age, comorbidity index) were considered as controls. Outcomes were the measures of distress levels, as assessed with the DT (scores 0-10) and the problem listing (scores 0-38).

A correlative analysis with chi-square tests was used to compare the Groups and Time points on the frequency of endorsements of each of the problems from the 38 item listing. As these analyses are for descriptive purposes only, a value of  $p < 0.10$  was used. When the number of 'yes' responses was small, Fisher's exact test was used.

Analyses of the top 3 causes of distress and bothersome symptoms were evaluated by thematic analyses (Owen WF, 1984) with three assessment criteria: recurrence of ideas (e.g. ideas that have the same meaning but different wording), repetition (i.e. same ideas using same wording), and forcefulness (i.e. cues that reinforce a concept such as punctuation, capital letters, or underlines). Descriptive statistics were used to summarize these data, with the frequency of matched items to the 38-item list with the DT. Of interest were the emergence of disease-specific themes, such as financial status and commonly reported symptoms that were absent from the 38-item DT.

## **Results**

The sample consisted of 60 men and 40 women (Table 1). The age of the sample ranged from 19 to 85, with an average age of 50 years. Most participants identified themselves as Caucasian (92%); 6% were African American, and 2% were Asian/Pacific Islander. The highest level of education for the majority of participants was a high school diploma (37.76%); 7% did not complete high school, and 22% completed some college. Of those in college, 6% earned an associate's or technical degree, 14% bachelor's degree, and 12% some graduate school or higher.

The etiology of distress in leukemia patients in early survivorship is multifocal. Levels of distress were elevated at all time points although analysis of variance (ANOVA) tests did not find any associations between specific time points and distress scores ( $p=0.274$ ). Nearly 62% of patients rated their distress level as 4 or more indicating moderate to severe distress. On average, 11 of the 38 problems from the total problem list were selected. Common physical problems included: fatigue 63%, dry skin 57%, sleep 45%, and eating 41%. Emotional issues were reported as depression 30%, sadness 38%, fears 49%, nervousness 51%, worry 62% and loss of interest in usual activities 31%. Practical issues included insurance/financial 32% and treatment decisions 20%.

Financial issues were a significant source of distress in 32% of respondents. A statistically significant difference ( $p=0.000$ ) was noted between mean income from pre-diagnosis to post-diagnosis; 37% of the sample noted a decrease in income. Comparisons between educational level ( $p=0.311$ ) and income, and geographical location/county of residence ( $p=0.776$ ) and income did not reveal statistically significant differences that could explain loss of wages and increased financial difficulties. These findings reinforce that cancer affects all walks of life; the educated, uneducated, and in all geographical and disparate areas of Ohio.

Table 2 summarizes the most common distresses and symptoms noted by participants. Overall, the most frequently reported subscales of stressors included disease symptoms, family/children, and work/financial. Many participants admitted to homesickness while in the hospital and missed their families. Some parents expressed concern over their children visiting in the hospital, in fear that their children might be afraid since they looked so different (e.g. hair loss, swelling from IV fluid, nasogastric and oxygen tubes). Participants expressed concern about time off from work for completion of treatments and anxiety of how to schedule and appear at all of the check up appointments once they returned to work. Some of the most bothersome reported symptoms included fatigue, nausea, pain, fever, skin changes and loss of appetite. Skin changes were a common problem noted by participants who underwent bone marrow transplantation.

### **Discussion**

These study results indicated that leukemia survivors experience a multitude of obstacles and challenges that extend beyond their cancer treatment. A top stressor noted in the free response section was the subscale of work/financial. These findings are similar to what was found by Markman & Luce who reported that the financial costs of treating cancer had caused a “large amount of distress” for cancer patients. McGrath, Hartigan, Holewa, & Skarparis noted the challenge of returning to work after hematology treatment. While this was a top stressor in the current study, there were no financial-related interventions noted during the patients’ provider visits. Participants also expressed great concern over family and children and how this disease would affect family interactions. Interventions to address patients’ family concerns were very minimal. Perhaps a psychological consult at the onset of treatment or at the ‘end of active treatment’ time point would be beneficial.

Insurance/financial problems were indicated by 32% of participants. It is important to note that 100% of the participants had medical insurance. However, insurance might still have been a concern in regards to what treatment and prescriptions were covered by their policy. Depression was reported in 43% of these respondents as compared to 24% of respondents who did not report insurance/financial problems. These findings are similar to what was noted by Sharp, Carsin, & Timmons (2012) and indicate that acute leukemia patients may benefit from a financial counselor consult.

Medical practices that utilized financial counselor consults reported increases in revenues (Gesme, & Wiseman, 2011). The initial responsibility of a financial counselor is to educate patients about their insurance benefits, and discuss how much of the annual deductible has been paid, the difference between copayments and coinsurance, and any benefit caps in place (Gesme & Wiseman, 2011). The financial counselor can explain the total cost of the planned treatment, the patient's out-of-pocket expenses, and the practice's payment policies (Gesme & Wiseman, 2011). The acute leukemia survivor and their family members may benefit from routine financial consults in the early survivorship period. Due to intense treatment regimens, many patients are forced to pursue disability benefits which may or may not support their family or medical needs.

### **Summary**

To ease the challenges of cancer survivorship, the Institute of Medicine (IOM) recommends the use of survivorship care plans (SCPs) (Salz, Oeffinger, McCabe, Layne & Bach, 2012). SCPs are personalized documents provided by the coordinating oncology clinician that summarize the patient's diagnosis and treatment, describe the possible late effects and other challenges commonly faced by survivors, recommended ongoing care (both self-maintenance



and care received by health care providers), and present resources to address practical and other issues in survivorship care (Salz et al., 2012). Although many issues with distress can be addressed by physicians or nurses, many patients may also benefit from coordination with psychosocial or other similar providers (Fashoyin-Aje, Martinez & Dy, 2011). Psychosocial care includes psychological and social services and interventions for both patients and their families that address issues such as emotional coping mechanisms, identification of appropriate resources, management of financial burden, and crisis interventions (Fashoyin-Aje et al., 2011). The acute leukemia population and their families may significantly benefit from Survivorship Care.

### References

- Carlson, L.E. & Bultz, B.D. (2004). Efficacy and medical costs' offset of psychosocial interventions in cancer care: Making the case for economic analyses. *PsychoOncology*, 13(12), 837-849. doi: 10.1002/pon.832
- DeGroot, V., Beckerman, H., Lankhortst, G.J., & Bouter, L.M. (2003). How to measure comorbidity: A critical review of available methods. *Journal of Clinical Epidemiology*, 56(3), 221-229. doi:10.1016/S0895-4356(02)00585-1
- Fallowfield, L. & Jenkins, V. (1999). Effective communication skills are the key to good cancer care. *European Journal of Cancer*, 35(11), 1592-1597.
- Fashoyin-Aje, L.A., Martinez, K.A., & Dy, S.M. (2011). New patient-centered care standards from the Commission on Cancer: Opportunities and challenges. *The Journal of Supportive Oncology*, 10(3), 107-111. doi: 10.1016/j.suponc.2011.12.002
- Gesme, D.H. & Wiseman, M. (2011). A financial counselor on the practice staff: A win-win. *Journal of Oncology Practice*, 7(4), 273-275. doi: 10.1200/JOP.2011.000341
- Hoffman, B. & D'Arrigo, M.T.C. (2004). Screening for distress in cancer patients: The NCCN rapid-screening measure. *PsychoOncology*, 13(11), 792-799. doi: 10.1002/pon.796
- Holland, J.C. & Bultz, B.D. (2007). The NCCN guideline for distress management: A case for making distress the sixth vital sign. *Journal of the National Comprehensive Cancer Network*, 5, 3-7.
- Jacobsen, P.B., Donovan, K.A., Trask, P.C., Fleishman, S.B., Zabora, J., Baker, F., & Holland, J.C. (2005). Screening for psychologic distress in ambulatory cancer patients. *Cancer*, 103, 1494-1502. doi: 10.1002/cncr.20940.
- Jacobson, P.B. (2007). Screening for psychological distress in cancer patients: Challenges and

opportunities. *Journal of Clinical Oncology*, 25(29), 4526-4527.

doi:10.1200/JCO.2007.13.1367

Keir, S.T., Swartz, J.J., & Friedman, H.S. (2007). Stress and long-term survivors of brain cancer.

*Supportive Care in Cancer*, 15(12), 1423-1428. doi: 10.1007/s00520-007-0292-1

Kornblith, A.B. (1998). Psychosocial adaptation of cancer survivors. In J.C. Holland, W.

Breitbart, P.B. Jacobsen, et al. (Eds). *Psycho-Oncology*. New York: Oxford Print Press, 223-254.

Lillberg, K., Verkasalo, P.K., Kaprio, J., Teppo, L., Helenius, H., & Koskenvuo, M. (2003).

Stressful life events and risk of breast cancer in 10,808 women: A cohort study. *American Journal of Epidemiology*, 157(5), 415-423. doi: 10.1093/aje/kwg002

Markman, M. & Luce, R. (2010). Impact of the cost of cancer treatment: An internet-based

survey. *Journal of Oncology Practice*, 6(2), 69-73. doi: 10.1200/JOP.091074

McGrath, P., Hartigan, B., Holewa, H., & Skarparis, M. (2011). Returning to work after

treatment for hematological cancer: Findings from Australia. *Supportive Care in Cancer*. doi: 10.1007/s00520-011-1298-2

McQuellon R.P. & Danhauer S.C. (2007). Psychosocial rehabilitation in cancer care. *Cancer*

*Survivorship: Today and Tomorrow*. 238-250. doi: 10.1007/978-0-387-68265-5\_18

Owen W.F. (1984). Interpretive themes in relational communication. *Quarterly Journal of*

*Speech*, 70, 247-287.

Rajandram, R.K., Ho, S.M., Samman N., Chan, N., McGrath C., Zwahlen, R.A. (2011).

Interaction of hope and optimism with anxiety and depression in a specific group of cancer survivors: A preliminary study. *BMC Research Notes*, 4, 519. doi: 10.1186/1756-0500-4-519.

- Rodin, G., Yuen, D., Mischitelle, A., Minden, M.D., Brandwein, J., Schimmer, A., ... Zimmermann, C. (2011). Traumatic stress in acute leukemia. *Psycho-Oncology*. doi: 10.1002/pon.2092
- Salz, T., Oeffinger, K. C., McCabe, M. S., Layne, T. M. & Bach, P. B. (2012). Survivorship care plans in research and practice. *CA: A Cancer Journal for Clinicians*, 62(2), 101–117. doi: 10.3322/caac.20142
- Sharp, L., Carsin, A.E., & Timmons, A. (2012). Associations between cancer-related financial stress and strain and psychological well-being among individuals living with cancer. *Psycho-Oncology* (epub ahead of print). doi: 10.1002/pon.3055
- Steel, J.L., Geller D.A., Gamblin T.C., Olek, M.C., & Carr, B.I. (2007). Depression, immunity, and survival in patients with hepatobiliary carcinoma. *Journal of Clinical Oncology*, 25, 2397-2405. doi: 10.1200/JCO.2006.06.4592
- Waller, A., Williams, A., Groff, S.L., Bultz, B. D. & Carlson, L.E. (2011). Screening for distress, the sixth vital sign: Examining self-referral in people with cancer over a one-year period. *Psycho-Oncology*. doi: 10.1002/pon.2102

Table 1 Sample Demographic

<b>DEMOGRAPHIC VARIABLES</b>	<b>(N=100)</b>
<b>Age</b>	
Mean Age	50 years of age
Range	19-85 years
<b>Gender</b>	
Male	60%
Female	40%
<b>Race</b>	
Caucasian	94%
Black	6%
Asian/Pacific Islander	2%
<b>Ethnicity</b>	
Hispanic	3%
Non-Hispanic	97%
<b>Education</b>	
Less than High School	7%
High School Graduate	38%
Associate Degree	6%
Bachelor's Degree	14%
Graduate School	12%
<b>Marital Status</b>	
Divorced/Separated	12%
Married	64%
Single, Never Married	18%
Widowed	6%
<b>Employment</b>	
Full-Time	24%
Part-Time	6%
Not Currently Employed	70%

Table 2

<b>Frequencies and Rankings of Top Three Causes for Distress (n=100)</b>		
<b>Distress 1</b>	<b>Distress 2</b>	<b>Distress 3</b>
Disease Symptoms: 23%	Disease Symptoms: 31%	Disease Symptoms: 23%
Family/Children: 14%	Treatment: 12%	Work/Financial: 11%
Work/Financial: 10%	Family/Children: 9%	Family/Children: 10%

<b>Frequencies of Top 3 Most Bothersome Symptoms (n=100)</b>		
<b>Symptom 1</b>	<b>Symptom 2</b>	<b>Symptom 3</b>
Fatigue: 18%	Fatigue: 12%	Fatigue: 7%
Pain: 9%	Pain: 9%	Fever: 5%
Nausea: 7%	Skin Problems: 5%	Eating, Appetite: 5%